REMARKS

Claims 1-27 are pending. New claim 27 has been added.

Applicant thanks the Examiner for the telephone interview of April 22, 2003, in which Applicant's claims were discussed in light of U.S. Patent No. 5,202,563 to Cotter. As discussed, proposed claim 26 has been amended and new claim 27 has been added. Claims 17 and 23 have also been amended. In addition, as was also discussed, a Supplemental IDS is submitted with the present Response.

Amended claims

Claim 17, as amended, recites in part a data processor adapted for calculating a differences or average differences in arrival times of corresponding particles at said first and second detectors to enable said m/z characteristics to be determined. Claim 23, as amended, recites in part calculating the m/z of at least some of the detected ionized particles using a difference or average difference in the time of flights for any or all ions of a given m/z to each of the two detectors. Claim 26, as amended, recites in part means for using the difference or average differences in the time of flights for any or all ions of a given m/z to each of the two detectors for improving the accuracy of measurement of the m/z values of ions.

As provided in MPEP § 2143, "[t]o establish a prima facie case of obviousness, ... the prior art reference (or references when combined) must teach or suggest all the claim limitations." Applicant submits that the cited references (U.S. Patent Nos. 5,202,563 to Cotter; 5,619,034 to Reed et al.; 6,107,625 to Park; 5,753,909 to Park et al.; 5,464,985 to Cornish et al.; and 5,331,158 to Dowell, and Applicant's admitted prior art), either singly or in combination, fail to teach or suggest these elements as required by MPEP § 2143. Accordingly, claims 17, 23, and 26, and any claims that depend from them, are allowable over the cited references.

New claim 27

New claim 27 recites, in part, sampling from the ion beam using at least two detectors, such that a share of the ion beam is detected on each of the two detectors, wherein the difference or average differences in the time of flights for any or all ions of a given m/z to each

of the two detectors is used for improving the accuracy of measurement of the m/z values of ions.

Applicant submits that the cited references (U.S. Patent Nos. 5,202,563 to Cotter; 5,619,034 to Reed et al.; 6,107,625 to Park; 5,753,909 to Park et al.; 5,464,985 to Cornish et al.; and 5,331,158 to Dowell, and Applicant's admitted prior art), either singly or in combination, fail to teach or suggest these elements as required by MPEP § 2143. Accordingly, claim 27 is allowable over the cited references.

Conclusion

It is respectfully submitted that independent claims 1, 14, 15, 17, 23, 26, and 27 are in condition for allowance. Dependent claims 2-13, 16, 18-22, 24, and 25 depend from and further limit their respective independent claims. Applicant respectfully submits that these claims are allowable as well.

Should the Examiner deem that any further amendment is needed to place this application in condition for allowance, the Examiner is invited to telephone the undersigned at the below listed telephone number.

Respectfully submitted,

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Gayle Conner

AMENDED CLAIMS PURSUANT TO 37 C.F.R. § 1.121

17. (Amended) A time of flight mass spectrometer for measuring the m/z of ionized particles, the spectrometer comprising:

an ion source for generating the ionized particles;

an accelerator for accelerating the ionized particles to form an ion beam;

first and second detectors for detecting at least some of the ionized particles from the ion beam; and

a first reflectron for reflecting at least some of the ionized particles towards the second detector, wherein the first reflectron is disposed between the first and second detectors, and wherein the second detector is positioned so as to intercept at least a first portion of the reflected ionized particles and to permit a second portion of the reflected ionized particles to pass; and

a data processor adapted for calculating a differences or average differences in arrival times of corresponding particles at said first and second detectors to enable said m/z characteristics to be determined.

23. (Amended) A method for measuring the m/z of ionized particles using a time of flight spectrometer, the method comprising:

generating the ionized particles;

accelerating the ionized particles to form an ion beam;

reflecting at least some of the ionized particles from the ion beam towards at least one of a first and second detector;

detecting at least some of the ionized particles with the first and second detectors, wherein the detecting includes intercepting at least a first portion of the reflected ionized particles with the second detector and permitting a second portion of the reflected ionized particles to continue past the second detector; and

calculating the m/z of at least some of the detected ionized particles using a difference or average difference in the time of flights for any or all ions of a given m/z to each of the two detectors.

26. (Amended) A time of flight mass spectrometer for measuring the m/z of ionised particles, the spectrometer comprising:

an ion source for generation of said ionised particles;

an accelerator for acceleration of said ionised particles so as to form an ion beam; ~~and~~

at least two detectors for sampling from the ion beam, such that a share of the ion beam is detected on each of the two detectors; and

means for using ~~wherein~~ the difference or average differences in the time of flights for any or all ions of a given m/z to each of the two detectors ~~is used~~ for improving the accuracy of measurement of the m/z values of ions.